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AUTHOR Balzer, Charlene
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ABSTRACT

This review of the literature summarizes findings on instructional grouping issues and academic achievement of gifted elementary students. The review addresses problems of using standardized tests to evaluate instructional effectiveness of grouping arrangements, distinctions between providing the same curriculum and a differentiated curriculum to gifted groups, and grouping within the heterogeneous class or in self-contained classes. It is concluded that research evidence strongly supports grouping of students by ability for at least the curriculum areas of reading and mathematics. In addition, there is also evidence that once students are grouped by ability, the level of instruction and pace of learning must be adapted in order to gain the maximum benefit for the student. (20 references) (DB)

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The Effect of Ability Grouping of Gifted Elementary Students, Combined With Instruction Modified for Level and Rate of Learning on Student Achievement

A Review of the Literature

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Dr. Anne S. Wax, Instructor

By

Charlene Balzer

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The Effect of Ability Grouping of Gifted Elementary Students, Combined with Instruction Modified for Level and Rate of Learning, on Student Achievement

Introduction

The passage of the Oregon Talented and Gifted Education Act has created a need for educators to focus on providing programs and services for intellectually gifted and academically talented students. Since this law requires instruction at instructional level and rate of learning in the curriculum areas, districts are looking to the classroom teacher to deliver this service. As a result, educators are searching for efficient and effective strategies to accomplish this. One of the strategies being discussed includes grouping arrangements.

The classroom teacher is expected to serve the needs of a diverse student population. It is not unusual for a classroom to include students from various cultural backgrounds, some of whom speak very little English; students with severe learning disabilities; students with physical or mental handicaps; students with behavioral problems; students with no apparent problems; underachievers; and students who are gifted and may or may not be included in some of the categories already mentioned. Consequently,

> . . . the demands on the regular classroom teachers to be more accountable, more skilled, and more productive already create extraordinary expectations and pressures. For education of the gifted to succeed in the regular classroom much work must be done by teachers in the regular classroom and teachers of the gifted to improve the conditions for learning and teaching in the regular classroom. Such improvements are possible; indeed, they are imperative. Educators of the gifted must concentrate on helping other teachers organize and differentiate instruction, individualize the curriculum, and manage behavior and interactions in ways that improve education for gifted children within a diverse, heterogeneous, multi-cultural classroom (McDaniel, 1989).

In an article discussing what is known about the brain and how educators can incorporate that knowledge into providing education for the gifted, Clark (1989) stated that:

> Grouping by need would replace grouping by age to allow appropriate experiences to be provided and continuous progress to be encouraged. The limits of a grade level curriculum would give way to pacing and leveling of content according to student need and progress.

When considering grouping gifted students for instruction, one has heard charges of elitism. However, grouping these students for all or part of the day addresses not only their advanced instructional needs, but their social-emotional needs as well. This literature review will only address the grouping issues related to academic achievement.

Statement of the Problem

With the comments from McDaniel and Clark in mind, together with the requirements of the Oregon law, educators must do what they can to assist

classroom teachers in finding effective instructional strategies for meeting the needs of gifted students. One of those methods may well be through effective grouping techniques. Therefore, the purpose of this study was to investigate the effect of ability grouping of gifted elementary students, combined with instruction at instructional level and learning rate, on student achievement.

Review of Related Literature

A search of ERIC using the descriptions "gifted," "elementary," and "grouping" (instructional purposes), provided 34 references which were mostly journal articles. There appears to be very little research focused specifically on the area outlined above. However, other studies were located from bibliographies of articles which mentioned students of high ability and/or instruction commensurate with ability and some of these were included in this review.

A meta-analysis of the literature on grouping and classroom organization in gifted education reported some cautions when reviewing the research (Goldring, 1990). The studies have not been well-designed and lack any randomized samples. The majority of

> "studies used standardized achievement tests as measures of outcome . . . (and) because of ceiling effects, the appropriateness of these tests for use in evaluating gifted education programs is questionable . . . (in addition,) the current studies were weak in documenting information about curricula, teaching methods, teacher-student interactions, class size, and teacher background variables. . . . Hence, it is difficult to judge whether differences in gifted students' achievements are caused by classroom organizational strategies or processes that occur in each classroom type" (p. 324-325).

Allen (1991) also points out some important issues educators must be aware of when reviewing the research. In addition to the ceiling effect of the instruments used to measure achievement, she quotes Slavin (1990), "One possibility is that the standardized tests used in virtually all the studies discussed in this (synthesis of research in secondary schools) review are too insensitive to pick up effects of grouping" (p.61). She also raises the issue that most teachers mention, and that is whether the tests measure what is actually being taught. When looking at the research questions being asked, Allen finds that "(o)ne question not asked in the Slavin research was whether programs designed to provide differentiated education for gifted . . . were effective" (p. 61). These types of programs were omitted from the Slavin synthesis because they "involve many other changes in curriculum, class size, resources, and goals that make them fundamentally different from comprehensive grouping plans" (Slavin 1986 in Allen). It appears that the question being addressed in most studies is whether the grouping by itself improves achievement when the question educators really want addressed is "whether grouping, with appropriately differentiated instruction, has any effect on student achievement" (Allen, p. 62). The studies which address this question show positive results. Some of these are addressed in this review. The limitations discussed by Goldring and Allen should be kept in mind when reading the following review and attempting to draw inferences about grouping arrangements related to gifted students.

Studies about the effects of ability grouping on student achievement have been conducted since the 1920s. However, a minority of them have addressed gifted students and grouping issues. One study, completed by J.T. Worlton (1927) for the Salt Lake City Schools, addressed the issue of the "retardation in the public schools . . . of the bright child. After collecting baseline data in 1924, he discovered "(p)rogressive retardation was shown as the intelligence level increased from the lowest to the highest." The district began to address this problem. Students in larger schools were homogeneously grouped, while teaching methods and curriculum content were improved in all the schools. Fifty classes were divided for the study. Twenty-one classes (714 students) were homogeneously grouped and fifteen classes (426 students) were heterogeneous grouped. Fourteen classes (326 students) remained heterogeneous grouped as in 1924 and became the control group. Follow-up testing was conducted in 1927 and the results showed that with one slight exception, the homogeneously grouped students at all intelligence levels showed superior achievement over the heterogeneous group and the control group (p. 342). Worlton also concluded that the improvement made since January 1924, in the scholarship of pupils of high native ability indicates that, with proper classification and instruction, these pupils may be expected to achieve scholastic results commensurate with their abilities (p. 345).

A study done in 1957 sought to find out if students taught math in homogeneous classes would learn more than students not so grouped (Provus). The teachers of both the experimental and control groups were told to encourage their pupils to move through the curriculum at a pace commensurate with their ability. Two of the things they found included that the children grouped by ability were more familiar with more arithmetic concepts than the others and that the more competent students profited most from ability grouping (p. 397). In addition, it was noted that the curriculum needed revision and extension in order to provide for the continuous and gradual student progress that would necessitate students needing advanced subject matter (p.398).

On the other hand, the Koontz study (1961) is often cited as evidence that homogeneous grouping, together with instruction on achievement level, shows no greater achievement than heterogeneously grouped students who followed a regular course of study. However, in Koontz's conclusions, he states that ". . . it may be that many variables that need to be controlled in experimentation with human behavior evaded control in this study. The . . . possibility still exists that educational experiences can be made more pointed and more meaningful when teachers can plan them for a class with a narrower range of differences; . . . further experimental evidence is necessary" (p 252).

A study by Halliwell (1963) on comparing pupil achievement in graded and nongraded primary classrooms offered some insights into the research on ability grouping. In the background discussion, Halliwell indicates that ". . . a perusal of the literature concerning the nongraded organizational pattern indicates that in actual practice the differences between the graded and nongraded patterns of school organization are primarily organizational and not curricular, and that little attention has been devoted to exploring the possibilities for curriculum revision within the scaffolding of the nongraded organizational pattern" (p. 60). In addition, he indicates that in the nongraded structure, the instruction is geared more to the individual differences and not locked in to grade level instruction. He also points out that proponents of the self-contained classroom fail to recognize that "most

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of the studies on ability grouping involved ability groups that rigidly adhered to graded notions. The high ability groups were usually not exposed to any advanced work . . . In actual practice the bright groups frequently marked time or did busy work" (p. 60).

In this study, no attempt was made to modify anything but the organizational structure. However, as the year progressed, requests were made for supplementary materials and teachers felt their attitudes had changed. "The teachers of the brighter pupils felt that in the past they had underestimated the extent of the brighter pupils' abilities" (p. 62). It became evident that significant changes in achievement could not be attributed to organizational change alone. However, the results of the study showed "that a nongraded approach to teaching of reading and spelling proved quite effective and (was) worthy of further investigation" (p. 63).

Esposito, in a study of the research ten years later, seemed to concur with Halliwell's observation that something other than organizational change was responsible for achievement gains when he stated

> . . . in the absence of any data which indicate that the practices of homogeneous and heterogeneous grouping are coupled with program conditions which change and improve the patterns of processes of teaching and learning, and in the presence of information which indicates, to the contrary, that simply adjusting the range of ability is *not* coupled with improved conditions for teaching and learning, many of the issues concerning the relationship between these grouping plans and student performance and development are . . . meaningless . . . (I)t seems far more promising to shift research time, money, and manpower to developing and testing ways and means of establishing more effective educational *systems* which . . . facilitate the achievement of specified instructional outcomes for *individual* children . . . And hopefully, bringing together children who vary with respect to attitudes, learning styles, ethnic and socio-economic background, . . . *within a structure which encourages flexibility in arranging instructional experiences,* could serve as the foundation for innovative and successful approaches to improving and equalizing educational opportunity (pp. 174-175).

A study that examined the implementation of the Joplin Plan of grouping (cross-grade) was interested in finding, among other things, the extent that students made expected gains when considering their abilities and "to what extent the program (was) beneficial to students of high . . . learning ability" (p. 567). The students were placed in reading groups based on test results. The number of groups at each grade level was based on the number of teachers at that level so some groups had wider ability ranges than others. The students were taught as one group. The materials were chosen to suit the ability of the majority of students in the group. Ramsey (1962) found that the grouping "appeared to be effective in producing expected reading gains for all three grade levels . . . For those . . . in the upper third of the classes in intelligence, it was effective in producing gains equal to or greater than expected" (p. 572).

In contrast to the Joplin Plan study by Ramsey where each teacher had one group of students who were grouped by ability, the students in the study by Hart (1959) were grouped by ability but the ranges were not as large. Each

teacher in the grade had students of similar ability, but within that group may have had two or three groups for instruction. The materials were also geared to the ability level without regard to grade level of the student. Under these conditions, Hart found that reading achievement was significantly greater under the experimental program than under the regular self-contained program.

Feldhusen (1989 in Cocking, 1990) believes that the various methods of ability grouping, together with differentiated curriculum and instruction, increases achievement for gifted students without decreasing achievement of other students. There appears to be strong evidence and support for the homogeneous grouping of students for instruction, either in self-contained classes or in cluster groups within a heterogeneous classroom. Higher academic achievement results if the instruction and curriculum are differentiated (Feldhusen, 1989).

Slavin (1988, 1989) has found evidence to support a grouping plan that combines heterogeneous grouping with homogeneous regrouping for reading and math if the level or pace of instruction has been adapted. He states that "(t)he limited research on regrouping plans suggests that regrouping can be instructionally effective if: (1) instructional level and pace are completely adapted to student performance level and (2) the regrouping is done for only one or two subjects so that students stay in heterogeneous placements most of the day (Slavin 1987b in Slavin 1988). The regrouping for the one or two subjects as opposed to a self-contained homogeneous placement allows the student to be served in the area of strength in a setting which allows for meaningful instruction. It also provides a more flexible environment where the placement can be frequently reassessed to ensure meeting individual needs.

If this regrouping plan is utilized between classrooms at the same grade level or mixed grade levels so that homogeneous groups are being instructed at the same time, some of the concerns of within-class ability grouping are reduced. According to Slavin, management of several groups within a class becomes a problem if this organization is utilized in a heterogeneous self-contained classroom because students are often engaged in seatwork during the time they are not receiving direct instruction. Slavin indicated that seatwork was not a problem for math since students needed independent work time, but he felt seatwork was less important for reading (p. 73). Often the seatwork during this time is of questionable value (Anderson et. al. 1985 and 1979 in Slaving 1988, p. 73). However, in the opinion of this writer, since it is possible to provide meaningful activities on which students can work when they are not receiving direct instruction, the concerns expressed can be addressed if attention is paid to the type of "seatwork" required.

Slavin's analysis would dispute the finding that achievement is improved if students are grouped by ability for the whole day; however, one must keep in mind the limitations of the original research (Goldring, 1990). In a best-evidence synthesis on ability grouping and student achievement, Slavin (1987) concludes that assigning students to self-contained classes on the basis of ability is not supported by the research. However, "(a)nalysis of effects of alternative grouping methods suggests that ability grouping is maximally effective when done for only one or two subjects, with students remaining in heterogeneous classes most of the day; when it greatly reduces student heterogeneity in a specific skill; when group assignments are frequently reassessed; and when teachers vary the level and pace of instruction according to students' needs" (p. 293). These conclusions provide

strong support for those of us in Oregon who are attempting to address the requirements of the Talented and Gifted Act through the regular classroom teachers and are meeting resistance on grouping from those who feel it has not been supported by research.

Kulik and Kulik, in a meta-analysis done in 1987, found "(t)he strongest and clearest effects of grouping were in programs designed especially for talented students. The talented students in these programs gained more academically than they would have if they had been taught in heterogeneous classes . . . Programs that were designed for all students in a grade - not solely for the benefit of talented learners - had significantly lower effects" (p. 28). The Kuliks disagree with Slavin's conclusion that it is better to only group for one or two subjects. They "found additional support for our earlier assertion (Kulik and Kulik, 1984) that grouping can be a powerful tool in the education of gifted and talented students" (p. 29).

With the limitations of the research in mind, Allen (1991) believes that "(g)ifted and high-ability children show positive academic effects from some forms of homogeneous grouping. The strongest positive academic effects of grouping for gifted students result from either acceleration or classes that are specially designed for the gifted and use specially trained teachers and differentiated curriculum and methods" (pp. 64-65). Kulik (f1991) agrees with Allen that the research on grouping has been misinterpreted. He believes that ability grouping should be divided into three distinct types and the results should be examined according to type: Type I: All groups are taught with the same materials and methods; Type II: Materials and methods are adjusted to meet special needs; Type III: Extensive adjustments of materials to meet needs as in acceleration models. Kulik states that "(m)ost evaluations have focused on Type I programs. The evidence that these programs usually lead to small positive gains in student learning has been twisted, however, to support the conclusion that grouping programs do not work and thus should be eliminated. This blanket condemnation of grouping has been extended to Type II programs, even though the evidence on these programs is clearly favorable" (p. 67). This valuable clarification is an important one to keep in mind when making decisions about the grouping of students for instruction.

Statement of the Hypothesis

Research evidence strongly supports grouping of students by ability for at least the curriculum areas of reading and mathematics. In addition, there is also evidence that once the students are grouped by ability, the level of instruction and pace of learning must be adapted in order to gain the maximum benefit for the student. "Ability grouping is assumed to allow the teacher to increase the pace and level of instruction for high achievers and provide more individual attention, repetition, and review for low achievers" (Slavin, 1987, p. 296). It is encouraging that the components of the Oregon Talented and Gifted Act that require instruction at instructional level and rate of learning are supported by research.

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